Oil and Gas Major Retires Mainframe After Upstream-Downstream Split

Business Scenario
Many organizations still rely on mainframe applications to fully or partially support their business functions. Businesses that partially rely on legacy systems also use them to reference historical information, resulting in a high total cost of ownership (TCO).

With the advent of modern architecture options, mainframe systems can be comparably difficult to maintain and result in mounting software maintenance costs. Moreover, these systems are typically susceptible to the risks and problems associated with aging, and they become more difficult to manage as operating knowledge decreases over time.

Client Situation
Our client, a global oil and gas (O&G) major, faced this situation when it split into two separate upstream and downstream businesses. The company concluded it needed to migrate off the mainframe platform because of the following factors:

- Upstream-relevant applications that were historically supported by downstream resources.
- High cost of maintaining equipment.
- Lack of readily available mainframe skill sets.
- Inflexibility of hardware and lack of integration with contemporary platforms.

The newly formed upstream company embarked on a mainframe retirement program, targeting its critical applications in the areas of health and safety, corporate communications and human resources, along with certain archival and reporting systems. The company partnered with us for the end-to-end migration program, which included portfolio analysis for application rationalization, technology migration and post-implementation support.

Challenges
Migrating a suite of applications maintained by the downstream business posed various challenges during the course of the program, including the following:

- Knowledge ramp-up on the application landscape in the absence of:
  - Business and system documentation.
  - Dedicated time from subject matter experts (SME) from the downstream business.
- Difficulty validating the identified logic and business flows due to a lack of application knowledge within the upstream business analyst team.
• **Tight timelines** for the migration because of legal constraints resulting from the split of the two companies.

• **Coordination issues** caused by a complex stakeholder environment (clients from split companies and multiple vendors in the IT landscape), as well as delays caused by external dependencies, including administration, communication and visibility across multiple vendors sharing the migration effort.

**Solution**

Our team applied our mainframe modernization methodology for achieving the program objectives, with participation from our Centers of Excellence (CoEs) to provide best practices.

The key solution elements included:

**Discovery Phase:** The team conducted a portfolio analysis of the applications, using our assessment framework to identify the applications suitable for the migration program. The key assessment parameters included business criticality, size and complexity, interdependencies, Sarbanes-Oxley criticality, associated business programs, interfaces and batch routines. The client reviewed these same elements in light of the required trade-offs and short-listed a set of core, critical applications to be considered for the migration effort.

The team incorporated detailed planning and a structured communication approach in this phase to make optimal use of SME time while obtaining requisite information.

**Reverse Engineering Phase:** We focused on outlining the business logic behind the applications identified in the discovery phase. This included a comprehensive analysis of the applications in question for system understanding and validating the analysis with the client SMEs. To bridge the information gaps that remained after the analysis, our legacy modernization CoE held collaborative sessions with the client to capture the missing information, along with the project team.

**Forward Engineering Phase:** The team produced flexible design documents that were fully traceable to the “as-is” system and conducted detailed walkthroughs of the design approach and data migration strategy. We designed a user interface (UI) prototype based on the client's standards and collaborated with client team members for periodic reviews. This helped the team ensure consistency with the client’s overall UI expectations and avoid changes in the testing phase in the interest of meeting the client’s stringent timelines. In addition, the team used the code review tool Omega.NET for quality assurance.

**Testing Phase:** We established mature testing processes, including end-to-end traceability of the testing phase by leveraging the testing tool HPQC.

**Production Rollout Phase:** The production phase included steady post-production support, to enable the client to independently function in and own the new environment. Knowledge transi-
tioning helped the client operate smoothly in the migrated environment.

**Benefits**

**High schedule accuracy**, through detailed planning and coordination with a complex network of stakeholders from the two split companies and multiple vendors.

**Zero post-production defects**, through deployment of mature testing practices and usage of tools.

**Accelerated business analyst and user ramp-up**, through structured documentation during the discovery and reverse-engineering phase.

**Quick turn-around time despite frequent scope changes**, lack of subject matter expertise and client resource availability, owing to the flexible design approach.

**Technical support enablement for long-term support**, through effective knowledge sharing with the SMEs and business analysts. This was achieved by embedding interactive, real-time training into the development cycles.

**Effective communication and knowledge sharing** across multiple teams through structured program management.

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